INVESTIGATOR'S ANNUAL REPORT

National Park Service

All or some of the information provided may be available to the public

Reporting Year: 1994	**Park:** Shenandoah NP
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Permit#:
SHEN1994AJLP

Park-assigned Study Id. #:
unknown

Project Title:
Basinwide Estimation of Habitat and Fish Production in Shenandoah National Park. Distribution and Habitat Utilization of Blacknose Dace (Rhinichthys atratulus) in Acid Sensitive Streams of the SNP

Permit Start Date: Jan 01, 1998	**Permit Expiration Date** Jan 01, 1998
Study Start Date: Jan 01, 1992	**Study End Date** Jan 01, 1996

Study Status:
Completed

Activity Type:
Other

Subject/Discipline:
Air Quality

Objectives:
In conjunction with the Environmental Sciences Department at the University of Virginia, evaluate the impact of acid precipitation on the distribution, abundance, and production of fish in selected SNP watersheds.

Findings and Status:
Preliminary analysis indicates that observable patterns in total brook trout production in these watersheds is being dominated by the contributions of age 1+ fish in pool habitat. Likewise, total blacknose dace production is being controlled by the dace in pool habitat, with the possible exception of Paine Run, where similar patterns in production exist in pool and riffle habitat. Fulton type conditon factors were calculated for all fish captured throughout the study, and an analysis of variance (ANOVA) was used to test for significant differences in the condition or performance of the fish measured among the three streams. Results of the ANOVA for brook trout and blacknose dace condtion among the three streams (separate analyses) indicated that at least one stream differed significantly from the others with respect to condition factor for each species. A multiple comparisons procedure (least significant difference - LSD) along with evaluation of the least squares means showed that no difference existed in the condition of brook trout from Paine Run and Piney River, while both had significantly lower condition that the trout in Staunton River. Similar procedures for blacknose dace condition indicated no difference between Staunton River and Piney River fish, while the condition of Paine Run dace was significantly lower. Other 2-way ANOVA's are being evaluated to partition the within stream variability in the condition of each species, for all streams, by habitat type and sampling period.;Experiments addressing fish use of potential refuge habitat during acidic episodes have been completed. Preliminary analysis indicates that both species (brook trout and blacknose dace) are able to recognize the onset of an acidic pulse equal in magnitude to what we observe in the natural system (Paine Run), and that they are able to seek out and use refuge from that pulse which is in close proximity.

For this study, were one or more specimens collected and removed from the park but not destroyed during analyses?
No

Funding provided this reporting year by NPS:	**Funding provided this reporting year by other sources:**

25000	10000
Fill out the following ONLY IF the National Park Service supported this project in this reporting year by providing money to a university or college	
Full name of college or university:	**Annual funding provided by NPS to university or college this reporting year:**
n/a	0